REVIEW & PERSPECTIVE

College of Business and Economics — University of Kentucky

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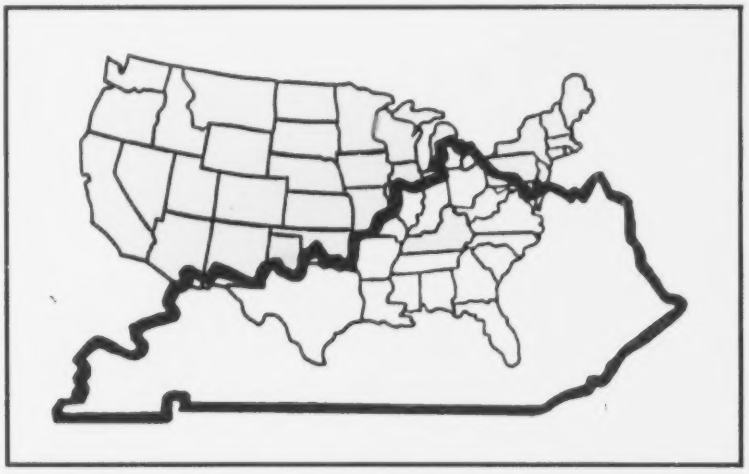

A publication addressing business, economic and public policy issues related to Kentucky.

Editor's Notes...

You may have noticed that you have not received an issue of Review and Perspective for some time. We apologize. J. Beth Smith resigned as the editor in August of 1988. We regret that we will not publish Vol. 12, Nos. 2, 3, and 4. We will resume publication on a regular schedule with this issue.

This publication is intended to serve the needs of legislators, decision makers, academics and the business community. We are interested in learning what issues and topics concern readers of this publication. We would appreciate hearing from you. Academic papers and articles are welcome for review. Please take the time to let us know what topics are of interest to you. We will try to accommodate your concerns whenever possible.

Lynne Kelly, Editor

Review and Perspective

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This publication provides current information concerning Kentucky's economy, its business activities and related public policy issues. It is intended to serve as a forum for the publication of short expository articles as well as analytical articles addressing any of these areas. The publication also includes tables of selected data chosen as indicators of developments in Kentucky and the national economies. Sometimes information about enhancements to the Kentucky Economic Informations System (KEIS) also appears in this publication.

Readers are encouraged to submit articles for publication. Articles should be sent to the editor at the address given above. All submissions will be reviewed independently by persons recognized as knowledgeable in the specific subject discussed. However, the ultimate responsibility for content rests with the author.

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Personal Income Statistics

*Carol M. Straus**

Consumers of statistical/numerical information are often unaware of the sources of data. Since this issue focuses on personal income, we are offering a short course on the source and meaning of the numbers.

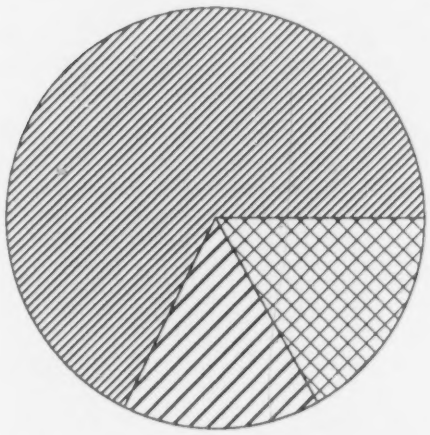
Personal income estimates are produced by the U.S. Bureau of Economic Analysis (BEA). Personal income is an estimate of all income received by, or on behalf of, residents of an area. It is a very inclusive estimate, and its production involves the use of administrative records and statistical products of numerous federal agencies that estimate types of monetary or non-monetary income.

Personal income includes earnings, cash transfer payments, dividend and interest income, and rental income. It also includes non-monetary income, including food stamps, medicaid and medicare, in-kind payments to employees (e.g., food, transportation, lodging), certain fringe benefits such as health insurance and pension plans, and net rental value of owner occupied housing.

In addition to income of individuals, personal income includes income of non-profit organizations and other entities that exist to serve individuals, such as churches, charities and private trust funds.

Personal income is initially estimated as an aggregate statistic; that is it is an estimate of the total income received by or on behalf of all individuals of an area, regardless of the size of the population. For comparing small areas, such as counties, personal income is most often analyzed in its per capita form, which is total personal income divided by the population.

Components of Personal Income in Kentucky, 1987



Net Earnings (work)
$30428: 68%

Transfer Payments
$7696: 17%

Income, Property
$6821: 15%

Net Earnings

- Wages and salaries
- Self-employment
- Excludes FDIC tax

Transfer Payments

- To individuals and non-profits
- Retirement income
  - Social Security
  - Private pensions
- Cash value of food stamps, Medicare, etc.
- SSI
- AFDC

Property Income

- Rent
- Dividends
- Interest

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Factors Associated with Levels of Per Capita Personal Income in Kentucky Counties

*John Whitehead, Paul Chambers and David Gulley**

Forty-five Kentucky counties were chosen for statistical analysis. The purpose of this analysis is to determine factors which are associated with per capita personal income in Kentucky counties. The fifteen counties chosen were the top fifteen, the middle fifteen, and the low fifteen ranked according to per capita personal income in 1986. The data were obtained from the Kentucky Statistical Abstract (1988). Pearson correlation coefficients were calculated for per capita county personal income, percent change in per capita county personal income (1980-1986), and the number of extractive and nonextractive industries in each county in 1986. Table 1 reports means, standard deviations, and definitions of these variables. Results appear in Table 2.

Per capita personal income is positively correlated with the number of firms in the agricultural services, fisheries, forestry, construction, manufacturing, transportation and public utilities, wholesale trade, retail trade, finance, insurance and real estate, and service industries at the .01 level of significance. Positive correlations indicate that these industries tend to be related to above average per capita personal county income but no causal relationships can be inferred. Most of these industries are typically concentrated in urban areas. Percent change in per capita personal county income is uncorrelated with all variables except agricultural services, fisheries, and forest industries. A third result is that the nonextractive industries (all industries except agricultural services, fisheries, forestry, farming and mining) are correlated with each other.

The income variables were also analyzed with net migration, the number of incorporated cities within the county, unemployment rate, availability to urban areas (the variable took a value of 1 if the county contained a large city or was located next to one and a value of 0 otherwise), and number of coal mines. Results are reported in Table 3 (means and variable definitions are also reported in Table 1). Per capita personal county income was positively correlated with access to cities at the .01 level and number of cities at the .05 level of significance, and negatively correlated with the unemployement rate. Percentage change in per capita personal county income was negatively correlated with the unemployment rate at the .01 level, coal producing mines at the .05 level and positively correlated with access to urban areas at the .01 level of significance. Net migration is negatively correlated with unemployment at the .01 level of significance which indicates people are moving out of counties with high unemployment rates. Net migration is positively correlated with access to urban areas which indicates people are moving into these counties. A reason for this may be the negative correlation between counties with access to cities and unemployement rates which is statistically significant at the .01 level.

TABLE 1
MEANS AND STANDARD DEVIATIONS OF VARIABLES

		Mean	S.D.
Y_1	Per capita personal county income	9845.33	3036.25
Y_2	% change per capita personal county income	38.09	10.29
X_1	Farming	785.40	468.99
X_2	Agricultural services, forestry, and fisheries	9.28	23.30
X_3	Mining	16.53	43.27
X_4	Construction	77.51	204.15
X_5	Manufacturing	47.17	126.55
X_6	Transportation and Public Utilities	36.02	72.80
X_7	Wholesale Trade	73.53	222.02
X_8	Retail Trade	257.17	626.29
X_9	Finance, insurance, and real estate	75.13	220.45
X_{10}	Services	280.71	805.73
Z_{1i}	Net migration	-1.54	4.99
Z_{2i}	Number of cities	5.00	14.38
Z_{3i}	Unemployment rate	11.06	4.47
Z_{4i}	Access to urban areas	.20	.40
Z_{5i}	Producing coal mines	21.60	72.96

**John Whitehead, Paul Chambers and David Gulley are doctoral candidates of the University of Kentucky, College of Business and Economics.*

TABLE 2: PEARSON CORRELATION COEFFICIENTS

	Y_{1i}	Y_{2i}	X_{1i}	X_{2i}	X_{3i}	X_{4i}	X_{5i}	X_{6i}	X_{7i}	X_{8i}	X_{9i}	X_{10i}
Y_{1i}	1	.65••	.10	.49•	.08	.44•	.40•	.40•	.40•	.44•	.42•	.42•
Y_{2i}		1	.09	.32••	.20	.26	.22	.16	.21	.24	.24	.23
X_{1i}			1	.06	.18	.05	.06	.00	.04	.05	.04	.04
X_{2i}				1	.12	.95•	.91•	.91•	.94•	.94•	.96•	.95•
X_{3i}					1	.10	.07	.28	.11	.13	.11	.11
X_{4i}						1	.99•	.97•	.99•	.99•	.99•	.99•
X_{5i}							1	.97•	.99•	.99•	.98•	.99•
X_{6i}								1	.98•	.98•	.97•	.97•
X_{7i}									1	.99•	.99•	.99•
X_{8i}										1	.99•	.99•
X_{9i}											1	.99•
X_{10i}												1

County i=1,...,n;n=45.
•Pearson Correlation Coefficient.
•indicates significance at the .01 level.
••indicates significance at the .05 level.

TABLE 3:
PEARSON CORRELATION COEFFICIENTS

	Y_{1i}	Y_{2i}	Z_{1i}	Z_{2i}	Z_{3i}	Z_{4i}	Z_{5i}
Y_{1i}	1	.65•	.18	.32••	-.76•	.60•	-.11
Y_{2i}		1	.11	.16	-.57•	.53•	-.31••
Z_{1i}			1	-.13	-.37•	.34••	-.18
Z_{2i}				1	.21	.40•	-.04
Z_{3i}					1	-.56•	.26
Z_{4i}						1	-.15

Per Capita Personal Income in Kentucky and Its Counties

John Whitehead, Paul Chambers and David Gulley

With a per capita personal income of $12,059 in 1987, Kentucky ranked 42nd out of the 50 states and the District of Columbia. Connecticut ranked first with $21,266 and Mississippi ranked last with $10,292. Between 1980 and 1987, Kentucky per capita personal income has grown by 50.3% in nominal terms and 11.4%, adjusted for inflation. This change ranks 32nd out of the 50 states and the District of Columbia. While Kentucky ranks below 41 states in per capita personal income, its income is growing faster than 19 other states.

Despite the fact that Kentucky's rank among states is higher for change in per capita personal income than is its rank for 1987 level of personal income, Kentucky per capita personal income reflects a national trend of a widening gap between states with high and low personal income. Within Kentucky, patterns of personal income among counties mirror this trend.

A comparison of the two Kentucky counties with the highest (Woodford) and lowest (McCreary) levels of per capita personal income in 1986 illustrates the overall trends. For example, per capita personal income varied from a high of $17,910 in Woodford County to a low of $5,503 in McCreary County in 1986. The McCreary County figure is less than a third of the Woodford County figure and the gap is widening. While Woodford County per capita personal income increased by 75.7% from 1980 to 1986, McCreary County per capita personal income increased by only 26.7%, both unadjusted for inflation. Between 1980 and 1986, 48% of the 40 Kentucky counties with the highest per capita income in 1986 had a percentage change in per capita income greater than the average for the state, compared with 33% for the middle third and 18% of the lower third.

Other statistics confirm the pattern of large and growing differences among counties in economic well being. For 1986, poverty rates were estimated at 3.4% for Woodford County and 45.1% for McCreary County.[1] This rate had decreased in Woodford County since 1980 and had increased in McCreary County since 1980. These figures suggest that the counties with higher personal incomes are widening the personal income gap between the poorer counties.

Certain factors which occur with high per capita personal income counties may be identified. The Kentucky counties with the top one-third incomes are mostly located in the Central and Western regions of the state. The lower one-third income counties are mostly located in the Southern and Eastern regions of the state. Per capita county personal income is positively related to access to urban areas (Cincinnati, Louisville and Lexington) and their large amount and variety of industrial activities.

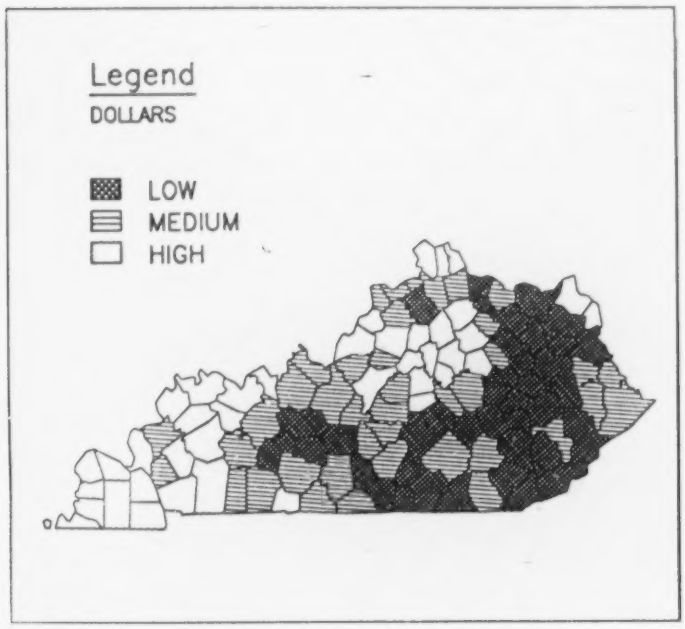
1*Koebel, C. Theodore and Michael L. Price, "Annual Estimates of Poverty for Counties in Kentucky," University of Louisville Urban Studies Center, 1988.*

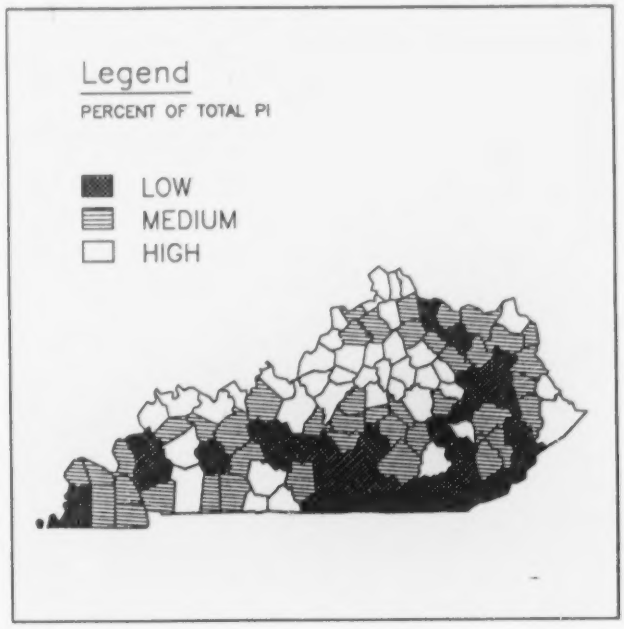
Since it is present in all counties, agriculture is not associated with either high or low per capita personal income. However, counties which have producing coal mines generally have low levels of per capita personal income. This indicates that coal producing counties have per capita incomes lower than average. The decline of OPEC, which has made cheaper energy sources available, and the trend toward greater mechanization in coal production appears to have had adverse affects on coal producing counties.

Levels of personal income are also associated with the relative importance of different sources of personal income. Income earned from wages and salaries or through self-employment accounted for over two thirds (68%) of personal income in Kentucky in 1987. Transfer payments (which include Social Security payments, private retirement pensions, and income maintenance) accounted for 17%, and the remaining 15% was investment income. Again, a comparison of Woodford and McCreary Counties illustrates the differences between high income and low income counties. In 1986 in Woodford County, 80% of total personal income was from earnings with only 8% from transfer payments. In contrast, only 47% of personal income in McCreary County was earned, and 44% was transfer payments. Generally, the higher the per capita personal income, the greater the percentage which is earned. Conversely, the lower the per capita personal income, the greater the percentage that is from transfer payments.

Factors which affect the percentage change in per capita personal county income are more difficult to uncover. It appears that urban and suburban areas in Kentucky have been growing fatser than rural areas in terms of per capita personal income. Kentucky counties with large cities and access to large cities were associated with a higher percentage change in per capita personal county incomes from 1980 to 1986. This is consistent with the national trend of growing service sectors. The service sector of the Kentucky economy has grown from 1980 to 1986 with urbanized areas receiving the largest growth.

In summary, Kentucky ranks near the bottom of national rankings of per capita income. Examining county level per capita income may suggest why state personal income is low. Counties with a large number of business establishments and a varied mix of industries tend to be associated with higher per capita personal income. Counties within commuting distance of large cities tend to have higher percentage changes in per capita personal county income. This situation appears to be getting worse, not better. The per capita personal income gap between the high income states and Kentucky has widened since 1980 as has the per capita personal income gap between high and low income Kentucky counties.





1986 Per Capita Personal Income for Kentucky Counties in Rank Order

County	Rank	Value	Percent Change from 1980	Percent from Earnings
Woodford	1	17,910	75.7	80.4
Fayette	2	15,134	53.8	72.7
Jefferson	3	14,482	45.4	67.1
McCracken	4	13,843	44.5	64.6
Hopkins	5	13,368	40.4	68.5
Henderson	6	13,254	39.5	71.8
Oldham	7	13,198	40.9	78.5
Franklin	8	13,122	41.8	67.5
Kenton	9	12,885	50.2	71.7
Boone	10	12,828	40.0	78.7
Campbell	11	12,525	48.2	69.0
Fulton	12	12,420	55.3	53.7
Daviess	13	12,416	38.5	67.4
Clark	14	12,350	47.1	71.3
Union	15	12,246	36.1	70.4
Shelby	16	12,145	38.6	69.6
Scott	17	12,144	52.2	73.1
Trigg	18	11,811	43.3	62.0
Mercer	19	11,748	39.8	67.9
Webster	20	11,748	34.9	63.8
Calloway	21	11,730	53.9	63.1
Graves	22	11,641	48.4	61.5
Boyd	23	11,629	26.0	63.5
Bourbon	24	11,586	19.2	67.1
Marshall	25	11,452	36.6	62.7
Ballard	26	11,368	41.1	61.0
Carlisle	27	11,291	65.0	58.5
Hancock	28	11,187	33.9	74.0
Anderson	29	11,181	40.0	70.7
Boyle	30	11,177	45.4	65.0
Simpson	31	11,103	51.1	67.8
Jessamine	32	11,091	43.1	76.4
McLean	33	10,959	40.7	65.0
Greenup	34	10,854	30.2	72.3
Livingston	35	10,798	38.0	63.2
Christian	36	10,740	51.8	72.3
Caldwell	37	10,638	38.1	58.9
Hickman	38	10,606	52.4	58.9
Harrison	39	10,483	35.3	63.2
Nelson	40	10,438	38.5	68.8
Muhlenberg	41	10,336	32.1	60.4
Warren	42	10,317	32.2	68.6
Mason	43	10,263	36.8	61.3
Washington	44	10,215	46.3	63.5
Carroll	45	10,210	38.3	66.4
Barren	46	10,174	47.2	65.5
Hardin	47	10,096	46.7	73.8
Perry	48	9,991	26.8	66.3
Allen	49	9,964	43.0	67.4
Grant	50	9,952	31.7	67.5
Logan	51	9,951	45.2	66.5
Madison	52	9,937	48.2	69.2
Taylor	53	9,935	39.7	66.4
Larue	54	9,910	36.7	63.2
Garrard	55	9,886	40.1	62.9
Henry	56	9,882	27.9	62.7
Bullitt	57	9,765	39.3	80.5
Gallatin	58	9,731	31.1	70.0
Ohio	59	9,580	30.8	62.0
Pike	60	9,572	20.2	67.7
KENTUCKY		11,335	41.3	67.4

County	Rank	Value	Percent Change from 1980	Percent from Earnings
Montgomery	61	9,511	33.6	67.2
Crittenden	62	9,472	42.9	58.9
Pendleton	63	9,443	29.7	66.8
Pulaski	64	9,430	37.2	63.0
Laurel	65	9,406	41.2	70.2
Breckinridge	66	9,391	49.2	62.9
Spencer	67	9,280	24.5	67.7
Johnson	68	9,244	23.0	65.4
Trimble	69	9,243	38.4	69.9
Lyon	70	9,202	38.7	58.1
Meade	71	9,178	48.6	74.9
Martin	72	9,157	16.1	71.5
Todd	73	9,109	49.4	61.5
Adair	74	9,065	54.3	59.1
Green	75	9,055	40.8	60.5
Marion	76	8,969	50.6	61.2
Nicholas	77	8,964	36.5	62.7
Monroe	78	8,912	50.7	60.6
Floyd	79	8,817	22.4	63.8
Whitley	80	8,777	34.0	56.9
Grayson	81	8,411	46.7	59.8
Breathitt	82	8,398	33.4	62.5
Bracken	83	8,394	34.9	59.8
Fleming	84	8,353	38.9	59.9
Butler	85	8,344	52.5	64.2
Owen	86	8,334	35.6	64.9
Lawrence	87	8,278	40.1	61.1
Russell	88	8,274	49.8	58.3
Lincoln	89	8,270	44.6	61.0
Bell	90	8,237	30.7	55.8
Rowan	91	8,222	36.5	65.0
Harlan	92	8,208	16.7	59.0
Hart	93	7,942	30.8	56.1
Estill	94	7,929	39.0	61.2
Bath	95	7,687	26.9	61.1
Powell	96	7,473	35.0	68.1
Letcher	97	7,462	25.0	57.1
Knox	98	7,444	39.0	59.2
Lewis	99	7,427	32.4	63.6
Carter	100	7,390	24.8	62.1
Rockcastle	101	7,390	41.1	61.1
Robertson	102	7,342	33.3	56.4
Cumberland	103	7,313	47.7	53.4
Clay	104	7,302	35.5	59.9
Metcalfe	105	7,206	40.8	59.0
Knott	106	7,170	33.7	56.9
Morgan	107	7,058	33.1	57.8
Wolfe	108	7,030	33.2	54.8
Magoffin	109	7,021	28.2	59.4
Wayne	110	6,834	31.8	56.1
Casey	111	6,826	29.6	59.9
Lee	112	6,663	40.9	53.4
Clinton	113	6,618	43.4	52.4
Leslie	114	6,480	26.8	64.1
Edmonson	115	6,188	21.8	60.4
Owsley	116	6,127	51.8	44.8
Elliott	117	6,104	28.3	58.6
Jackson	118	5,997	37.9	56.1
Menifee	119	5,436	24.8	57.2
McCreary	120	5,303	27.6	46.7

Source: U. S. Bureau of Economic Analysis. Key: Numbers in **bold** indicate highest rank; Numbers underlined indicate medium rank; Normal numbers indicate lowest rank

Unemployment Insurance and Personal Income

*Charles Hultman**

One of the more important state-federal government arrangements that has an impact on personal incomes is the unemployment insurance system. Kentucky, along with all other states, established unemployment insurance programs in the 1930s in an effort to alleviate the hardships experienced by workers who became unemployed and without an income. Such programs also have a stabilizing impact on the economy over the business cycle by reducing the size of changes in workers' disposable incomes. The purpose of this note is to summarize briefly the nature of Kentucky's unemployment compensation program, to indicate its impact on Kentucky income, and to evaluate the current financial status of the program.

General nature of Kentucky's unemployment compensation. The unemployment insurance programs established by the various states are financed through employer payments of a specified portion of each employee's wage into a trust fund. This payment, or employer contribution, is based on the work experience (relating to lay-offs) of each employer's labor force, as well as the size of the trust fund balance. For example, in 1987, Kentucky employers, on average, paid about 2.8 percent of taxable wages (defined as wages up to a maximum of $8,000) for each employee. The range of the tax rate in 1987 varied from a low of .6 percent to a high of 9.75 percent. In total, Kentucky employers paid about $220 million into the trust fund in 1987.

When a covered employee loses his job, he is eligible for benefits.[1] The unemployed worker is compensated depending upon the length of time he has been employed and his income during that time. In 1988, this amount ranged from a minimum of $22 to a maximum of $166 each week for a maximum of 26 weeks. The average payment for a week of total unemployment amounted to about $115 during the year.

Income impact of insurance program. The most important impact of the UI program is that it protects the eligible worker against the total loss of income in event of unemployment. For example, the average weekly wage of covered Kentucky employees in 1988 was about $353; the average benefit payment of $115 meant that about one-third of lost wages were covered by the arrangement. In aggregate terms, Kentucky workers received almost $148 million in benefit payments during 1988 in partial compensation for lost wages.

The income impact of the program is greatest when the need is greatest. During 1982, a major recession year, Kentucky workers received about $339 million during weeks when work was unavailable to them.

The unemployment insurance program also has a stabilizing impact on aggregate income over the business cycle. During periods of recession, amounts paid from the trust fund in the form of benefits to workers generally exceed employer contributions to the trust fund with a net addition of purchasing power to the income stream. During boom periods, unemployment and benefit payments decline although employer contributions to the trust fund may continue at a high level until the fund balance is replenished.

The counter-cyclical impact is apparent in Kentucky's program. For example, the median insured unemployment rate in the state since 1970 was 3.4 percent. During all years when the insured unemployment rate exceeded 3.4 percent, benefit payments from the trust fund exceeded employer contributions to the fund; during virtually all years that the unemployment rate was less than 3.4 percent, benefit payments from the fund were less than employer contributions to the fund.

Present status of the trust fund balance. At the end of 1988, the state held a reserve or trust fund balance of about $327 million which is available for benefits to eligible unemployed workers. This is more than double the amount actually paid out in the form of benefits during 1988; however, it is also slightly less than the amount of benefits paid in 1982. Clearly, the adequacy of the trust fund balance depends to a great extent on economic conditions and, in particular, on the unemployment rate.

The adequacy of the trust fund balance has been of concern, especially since 1981 when Kentucky and many other states depleted their trust funds and were forced to secure loans from the federal government in order to continue benefit payments. As a result of the severe recession in 1981 and 1982, the heavy benefit payments, and the consequent depletion of its trust fund, Kentucky made several important legislative changes in its program in 1982 to affect contributions to, and benefit payments from, the trust fund. The taxable wage base was increased from $6,000 to $8,000; applicable tax rates were increased for employers with poor employment experience; and a

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[1] In general, workers not covered by unemployment insurance could include agricultural labor, domestic service workers, self-employed, and some part-time employees.

TABLE 1
FACTORS AFFECTING KENTUCKY'S TRUST FUND BALANCE

	Total unemployment rate	Insured unemployment rate	Employer contributions	Average tax rate	Benefit payments	Year-end trust fund balance	Average weekly benefit amount
1980	8.00%	5.4%	$147m	2.6%	$270m	$42m	$101.40
1981	8.40	4.5	187	3.3	233	(8)	105.50
1982	10.60	5.8	235	3.6	339	(121)	116.01
1983	11.70	4.9	247	3.7	264	(151)	106.95
1984	9.40	3.2	273	3.9	162	(11)	99.56
1985	9.50	3.2	254	3.5	176	77	104.53
1986	9.24	3.1	239	3.2	184	151	106.58
1987	8.83	2.4	220	2.8	141	251	107.73
1988	--	2.2	202	2.5	148	327	115.13

Source: Derived from tables provided by the Department for Human Services, Cabinet for Human Resources, Frankfort, Kentucky.

temporary cap was placed on the maximum weekly benefit amount. The impact of this legislation in combination with economic conditions are reflected in Table 1.

During the period 1980-1988, the state's total unemployment rate remained relatively high--generally above 8.0 percent. The insured rate has been significantly lower, especially since the mid-1980s, an indication either that part of the labor force has not been covered by the program or that covered workers have exhausted their benefits. Employer contributions to the fund were particularly high during the mid-1980s as a result of the depletion of the fund and the shift to higher taxes. The average tax rate reached 3.9 percent of taxable wages in 1984, but has declined significantly since that time. Benefit payments reached a peak in 1982 and have also declined significantly since then. The state borrowed from the federal government in 1981 and subsequent years; however, the trust fund balance was replenished within a relatively small number of years.

If Kentucky and the rest of the nation were to experience a sharp, prolonged recession over the next three to four years, employers would be subjected to higher tax payments, and the trust fund could conceivably be depleted. A more moderate recession would result in a shift to higher employer taxes, and maximum weekly benefit amounts for employees would increase more slowly. If, however, the insured unemployment rate remains at or below 2.5 percent, the fund balance is likely to increase to and stabilize at about $375 billion for a period of time. Employer tax rates would decline slightly, falling within a range of .3 percent to 9.0 percent of taxable wages.

selected indicators of ECONOMIC ACTIVI

	July 1988	August 1988	Sept. 1988	Quarter III 1988	% Change From Previous Quarter	% Change From Previous Year	July 1988	Augu 1988
				KENTUCKY				
EMPLOYMENT								
Civilian Labor Force (SA) (thousands)								
Total	1716.1	1701.9	1712.1	1710.0	0.1	1.4	121684.0	12203
Employed	1569.9	1570.1	1586.5	1575.5	0.7	2.4	115059.0	11512
Agriculture	68.0	71.8	75.5	71.8	7.4	8.2	3046.0	3151
Nonagriculture	1501.9	1498.2	1498.2	1499.4	0.1	1.8	112014.0	112029
Unemployed	144.3	129.6	123.5	132.5	-6.7	-9.3	6625.0	6851
Civilian Unemployment Rate (SA) (Percent)	8.4	7.6	7.2	7.7	-6.4	-10.5	5.4	5
Nonagricultural Wage and Salary Employment (SA) (thousands)								
Total	1366.2	1359.9	1351.7	1359.3	0.7	3.1	88941.0	89066
Goods-Producing	371.9	371.0	369.5	370.8	0.3	3.6	25663.0	25639
Manufacturing	274.0	274.5	273.3	273.9	1.5	4.6	19593.0	19560
Services-Producing	994.2	988.9	982.2	988.4	0.9	2.9	80608.0	80786
PRODUCTIVITY								
Average Weekly Earnings of Production Workers								
Manufacturing	410.8	410.3	413.3	411.5	-0.4	1.3	413.5	412
Mining	465.2	502.6	493.0	486.9	16.5	4.2	535.5	530
Average Weekly Hours of Production Workers								
Manufacturing	40.2	40.3	40.6	40.4	-0.6	0.1	41.1	41
Mining	32.6	35.1	36.9	34.9	1.1	27.4	42.3	42
HOUSING (Permits)								
Total Units (thousands)	1.0	1.3	1.6	3.9	13.1	45.1	121.3	137
Valuation (millions $)	61.9	79.1	84.3	225.3	.0	27.9	8252.0	9502
Single-Family Units (thousands)	0.7	0.9	0.8	2.4	-10.7	5.1	86.3	97
Valuation (millions $)	53.8	68.4	58.2	180.4	-12.1	9.2	6915.0	7912
Multi-Family Units (thousands)	0.3	0.4	0.8	1.5	93.1	257.0	35.0	39
Valuation (millions $)	8.2	10.7	26.1	45.0	123.9	310.0	1337.0	1590
MINING								
Coal Production (millions of tons)								
Total	11.5	14.9	14.1	40.5	6.8	-5.4	72.2	91
Eastern Kentucky	8.4	10.8	10.2	29.4	4.3	-7.3	--	
Western Kentucky	3.2	4.1	3.9	11.1	14.1	-0.1	--	
SALES								
New Passenger Car Registrations (thousands)	10.2	10.0	8.6	28.8	-3.1	-3.9	883.1	900

SA = Seasonally adjusted

SAAR = Seasonally adjusted at annual rate

NA = Not available

*** = Quarter to quarter comparisons are not meaningful due to seasonal variation.**

% Change from Previous Quarter or Year = The percent difference between the current quarter and the same quarter in the quarter or year.

[1]Nonagricultural Wage and Salary Employment differs from the Employed Nonagricultural civilian Labor Force by the number of persons defined as self-employed.

[2]Average hourly earnings can be calculated by divi hours into average weekly earnings.

[3]For Kentucky, the measures of mining produc bituminous coal and lignite. However, the U.S. data of mining.

[4]The housing figures describe private structures for permit has been authorized.

[5]These mining figures describe production of bitumi for both Kentucky and the U.S.

[6]New passenger car registration data are obtained Company.

TY

These tables of selected indicators of economic activity were prepared using data maintained through the Kentucky Economic Information System, Carol M. Straus, Manager. The data in the tables are reported figures which were obtained from a variety of state and federal agencies, as well as from private firms.

Sept. 1988	Quarter III 1988	% Change From Previous Quarter	% Change From Previous Year
UNITED STATES			
121924.0	121880.0	0.51	1.52
115328.0	115189.0	0.48	2.71
3169.0	3122.0	0.19	-1.82
112158.0	112067.0	0.49	2.18
6596.0	6691.0	1.13	-7.06
5.4	5.5	0.62	-8.45
89181.0	89062.7	0.91	3.99
25642.0	25648.0	0.35	2.38
19548.0	19567.0	0.59	4.07
81087.0	80827.0	0.89	3.86
423.3	416.6		
537.2	534.3	0.12	3.45
		0.06	2.48
41.2	41.1	0.00	0.55
42.1	42.1	-0.86	-0.39
125.0	383.4	-10.57	-5.33
8505.0	26259.0	-9.83	3.84
84.8	268.3	-10.27	-1.14
6951.0	21778.0	-9.13	7.26
40.2	383.4	322.25	183.79
1554.0	4481.0	-13.09	-10.07
85.8	249.0	9.87	6.87
--	--	--	--
--	--	--	--
936.6	2720.3	0.49	-1.30

	July 1988	August 1988	Sept. 1988	Quarter III 1988	% Change From Previous Quarter	% Change From Previous Year
	UNITED STATES					
PRICES						
Consumer Price Indexes (1982-84=100)						
All Items	118.5	119.0	119.8	119.1	1.20%	4.12%
Food and Beverages	118.8	119.4	120.1	119.4	1.46	4.86
Medical Care	139.3	139.9	140.4	139.9	1.70	6.61
Energy	91.4	92.3	91.9	91.9	3.22	-0.18
Producer Price Indexes (1982=100)						
All Commodities	107.9	108.0	108.1	108.0	1.41	4.18
All Finished Goods	108.6	108.8	108.6	108.7	1.18	2.64
Intermediate Materials	108.2	108.4	108.7	108.4	1.88	5.86
Crude Materials	97.3	97.3	96.6	97.1	0.17	1.04
All Construction Materials	115.9	116.3	116.5	116.2	0.96	5.86

	Quarter I 1988	Quarter II 1988	Quarter III 1988	% Change From Previous Quarter	% Change From Previous Year
	UNITED STATES				
PERSONAL INCOME (SAAR) (billion $)	3951.4	4022.4	4092.3	1.74%	7.36%
FOREIGN TRADE (billion $)					
Exports	73.6	78.0	76.0	2.56	25.79
Agriculture	9.4	8.7	8.7	-0.25	26.61
Imports	105.6	109.8	109.8	0.02	6.27
Balance	-32.0	-31.7	-33.7	6.31	21.26
MISCELLANEOUS					
Gross National Product (SA) (billion $)	4,724.5	4,823.8	4,909.2	1.77	7.47
Gross National Product (SA) (billion 1982$)	3,956.1	3,985.2	4,009.4	0.61	3.73
Composite Index of 11 Leading Indicators (1967=100)					
Index of Industrial Production (SA) (1977=100)					
Average Prime Rate Charged by Banks on Short-Term Business Notes	8.6	8.8	9.7	10.59	15.60
Interest Rate on 3-month Treasury Bills	5.8	6.2	7.0	12.25	15.91

	Quarter I 1988	Quarter II 1988	Quarter III 1988	% Change From Previous Quarter	% Change From Previous Year
	KENTUCKY				
PERSONAL INCOME (SAAR) (million $)	46,747.0	47,647.0	48,394.0	1.57	6.57
STATE GOVERNMENT RECEIPTS (million $)					
General Fund	742.5	827.7	721.3	-12.86	-10.07
State Road Fund	139.5	160.4	167.2	4.20	13.70

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Economic Commentary

*Charles F. Haywood**

Personal Income is one of the most widely used statistical series to compare the performance of a state or regional economy with the performance of the national economy. The popularity of Personal Income as an economic indicator reflects (1) the fact that it is closely related to Gross National Product (GNP) and to National Income and (2) the fact that it is regularly published and readily available on a state and regional basis.

Included in Personal Income are: (a) wages and salaries; (b) net income of individual proprietorships and partnerships; (c) rents, royalties, interest, and dividends paid to recipients other than corporations; and (d) "transfer payments" -- pensions, Social Security benefits, and similar payments. The relationship of Personal Income to the "National Income and Product Accounts" can be summarized as follows:

	Gross National Product (GNP)
-	Depreciation
=	Net National Product (NNP)
-	Indirect Business Taxes
=	National Income
-	Retained Earnings of Corporations
-	Corporate Taxes
-	Social Security Taxes
+	Transfer Payments
=	Personal Income

While showing movements that roughly paralleled national trends, growth of Personal Income in Kentucky lagged behind national growth during the 1980s. Personal Income data for Kentucky and the United States (published by the U. S. Department of Commerce) are shown in Table 1 for the period from the fourth quarter of 1980 through the fourth quarter of 1984 and in Table 2 for the period from the first quarter of 1985 through the third quarter of 1988. The reason for breaking the series into these two time periods is that a revision affected the comparability of pre-1985 estimates with estimates since the beginning of 1985. The data shown in Table 1 and Table 2 are quarterly estimates of seasonally adjusted annual rates.

Graphical presentation of the data in Table 1 and Table 2 is hampered by the fact that the dollar amounts for Kentucky are very small compared to the dollar amounts for the United States. For example, in the third quarter of 1988 Kentucky Personal Income was only 1.2 percent of the United States total. A

TABLE 1
Personal Income
($ billions)

	U.S.	KY
1980- IV	2,258.2	29.1
1981- I	2,317.3	30.1
- II	2,376.2	30.1
- III	2,447.6	31.7
- IV	2,482.6	31.9
1982- I	2,498.6	32.1
- II	2,541.5	32.0
- III	2,584.7	32.6
- IV	2,625.3	33.4
1983- I	2,650.5	33.9
- II	2,704.9	34.5
- III	2,753.1	35.1
- IV	2,826.0	35.9
1984- I	2,908.9	37.4
- II	2,989.3	38.0
- III	3,057.3	38.9
-IV	3,112.6	39.5

Source: U.S. Department of Commerce

TABLE 2
Personal Income
($ billions)

	U.S.	KY
1985- I	3,255.0	39.5
- II	3,299.6	40.2
- III	3,323.6	40.2
- IV	3,390.8	40.8
1986- I	3,451.5	41.6
- II	3,507.4	41.8
- III	3,537.2	42.5
- IV	3,589.6	42.4
1987- I	3,663.7	43.4
- II	3,721.7	44.4
- III	3,785.6	45.4
- IV	3,901.5	46.6
1988- I	3,923.7	46.7
- II	4,003.5	47.6
- III	4,074.8	48.4

Source: U.S. Department of Commerce

**Dr. Charles Haywood is a Professor of Finance and the Chief Economist for the Center for Business and Economic Research, College of Business and Economics at the University of Kentucky.*

meaningful graphical comparison can be obtained, however, by indexing the respective series to show change from a base period. Figure A compares the trend of Kentucky Personal Income with the trend of U. S. Personal Income for the period 1981-1984, with both series indexed to the fourth quarter of 1980 as 100. Figure B compares the trends of the two series for the period 1985-1988, with both series indexed to the first quarter of 1985 as 100.

Figure A shows that growth in Kentucky Personal Income faltered in the second quarter of 1981 and the second quarter of 1982. Kentucky caught up with the national trend in the first quarter of 1984 but slipped below the national trend during the rest of 1984. In Figure B growth in Kentucky Personal Income appears to have been lagging behind the national trend since the first quarter of 1986.

Closer comparison of the growth rates of Personal Income in the U. S. and Kentucky is made in Figures C and D. Shown in these two figures are the quarter-to-quarter percentage changes in the Personal Income data set forth in Table 1 and Table 2.

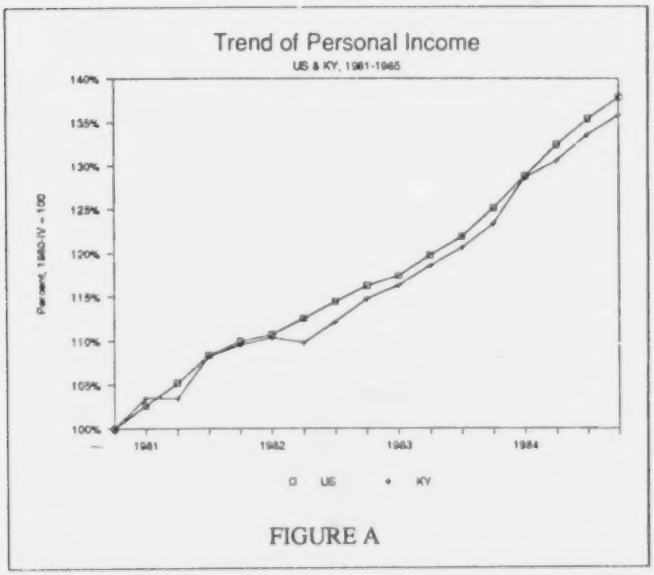

FIGURE A

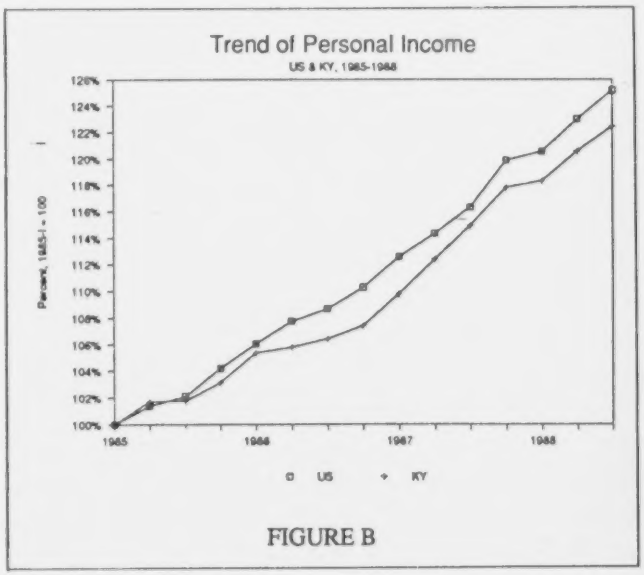

FIGURE B

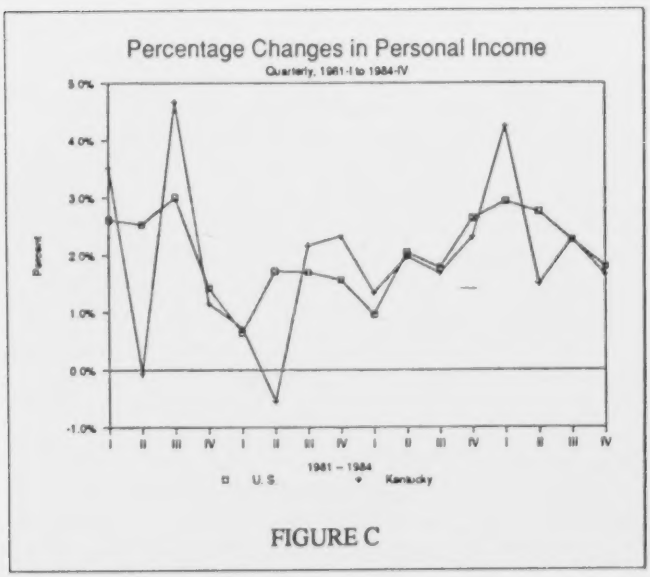

FIGURE C

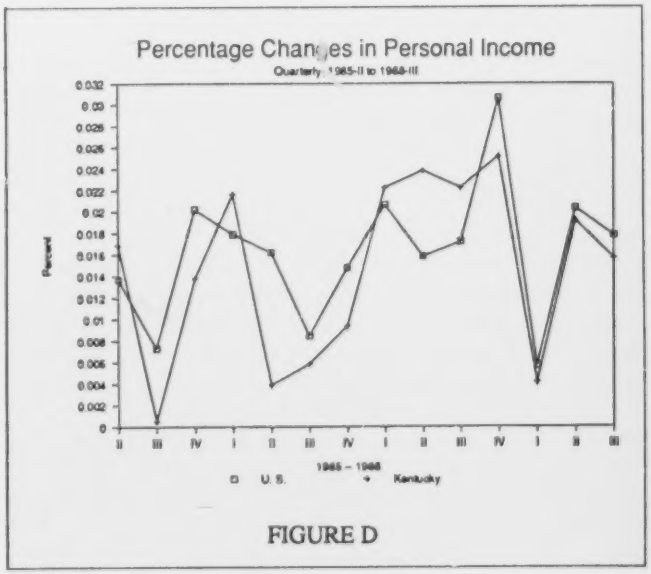

FIGURE D

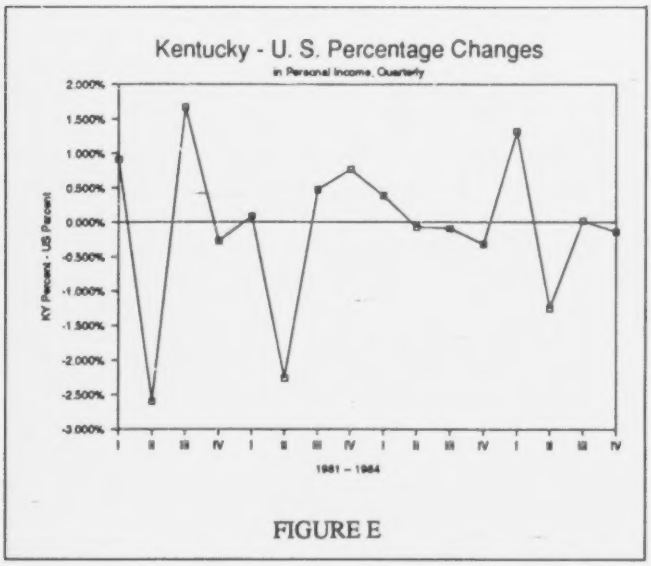

FIGURE E

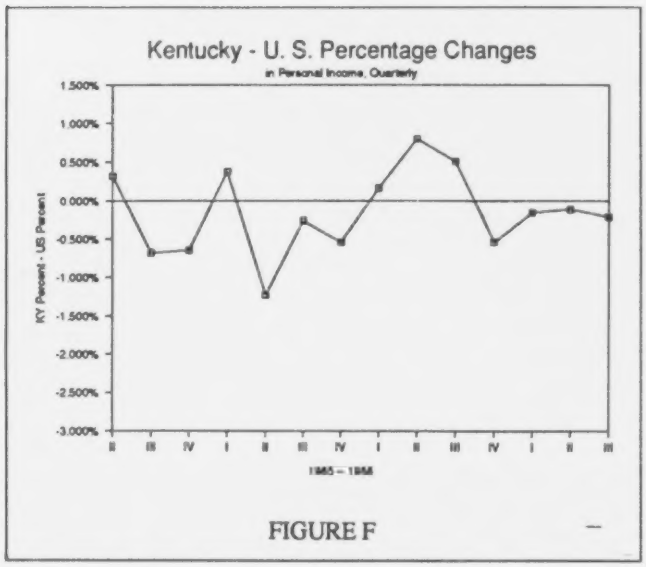

FIGURE F

In the period 1981-1984 (Figure C), the changes in Kentucky Personal Income roughly paralleled the changes in the national total. However, the Kentucky changes showed more volatility than the national changes, especially in the second and third quarters of 1981, the second and third quarters of 1982, and the first and second quarters of 1984. In the period 1985-1988 (Figure D), the volatility of the Kentucky changes appears to have diminished.

Figures E and F show the differences between the Kentucky and U. S. percentage changes in Personal Income.

In the 1981-1984 period (Figure E) Kentucky's growth rate clearly exceeded the national growth rate in five of the sixteen quarters. In the seven other quarters, Kentucky's percentage change was roughly the same as the nation's percentage change. In three quarters -- the second quarters of 1981, 1982 and 1984 -- the Kentucky rate of change was significantly below the U. S. rate of change.

The reduced volatility of changes of Kentucky Personal Income in the period 1985-1988 is evident in Figure F. The differences between the Kentucky and U. S. rates of change vary within a somewhat narrower range in Figure F than in Figure E. Kentucky's percentage changes exceeded the national percentage changes in five of the fourteen quarters. Kentucky's changes fell below the national changes in the other nine quarters in Figure F, though in the three quarters reported thus far for 1988 the shortfall was relatively small.

The availability of Kentucky Personal Income estimates on a quarterly basis and their comparability to national data suggest the possibility of using these estimates as a "leading indicator," or perhaps more accurately as an "early indicator" of economic trends in Kentucky.

Eleven series of data are currently used as the "leading indicators of the Kentucky economy." These series are updated and published monthly (with a lag of two months or so) as part of a joint undertaking by the Courier-Journal, the University of Louisville, and the University of Kentucky. Data for the eleven series are shown in Table 3 for December 1987 and December 1988.

Nine of the eleven series were higher in December 1988 than in December 1987. The most impressive gain was the 3.21 percent increase in jobs in manufacturing. The declines in new car registrations and in petroleum, coal, rubber, and plastics manufacturing jobs should be viewed within the perspective that several of the Kentucky leading indicators may show considerable fluctuation from one month to the next. Tax receipts, in particular, can vary from one month to the next simply as a result of variations in the pace of administrative processing of receipts in Frankfort. Car registrations are also one of the more volatile series. Employment in tobacco manufacturing and workers' earnings in the distilled liquors sector have also shown relatively large month-to-month fluctuations.

The changes in the leading indicators shown in Table 3 for 1988 suggest a slowing in the pace of expansion of the Kentucky economy. When viewed in conjunction with the Personal Income data discussed above, the indicators can be interpreted that the Kentucky economy, while continuing to expand, is lagging behind national trends.

Figures G, H, J, and K compare recent movements in Kentucky Personal Income and in the Kentucky leading indicators. Recent revisions in data and delays in the publication of data limit the period for comparison to the year running from the third quarter of 1987 through the third quarter of 1988.

The best fit between changes in Kentucky Personal Income and any of the eleven leading indicators was for manufacturing wages (Figure G). Figure H shows the trend of Kentucky Personal Income in comparison to the composite index of the eleven leading indicators (denoted as "Series 11" in Figure H).

TABLE 3
Kentucky Leading Economic Indicators
December 1987-December 1988

Series Change	December 1987	December 1988	Percent Change
Workers' earnings, $ million at annual rate			
Manufacturing	5,744.04	5,869.25	2.18
Distilled Liquors	78.79	83.74	6.28
Employment, number in thousands			
Nonagricultural wage and salary jobs	1,357.25	1,378.98	1.60
All manufacturing jobs	268.75	277.38	3.21
Tobacco manufacturing jobs	6.21	6.69	7.73
Petroleum, coal, rubber& plastics manufacturing jobs	19.51	19.05	-2.36
Manhours, number in millions at annual rate			
All manufacturing	569.85	576.64	1.19
Nondurable manufacturing	257.45	260.93	1.35
Durable manufacturing	314.61	316.32	0.005
Tax receipts in month, $million			
KY individual income tax	82.39	88.76	7.73
Car registrations in month, number in thousands			
KY new cars	9.10	8.19	-10.00

Source: Courier Journal; Bureau of Economic Research, University of Louisville; Center for Business and Economic Research, University of Kentucky.

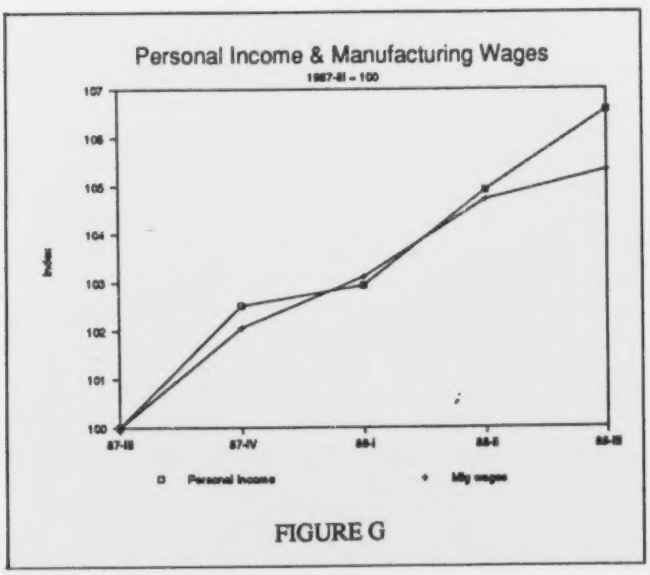

FIGURE G

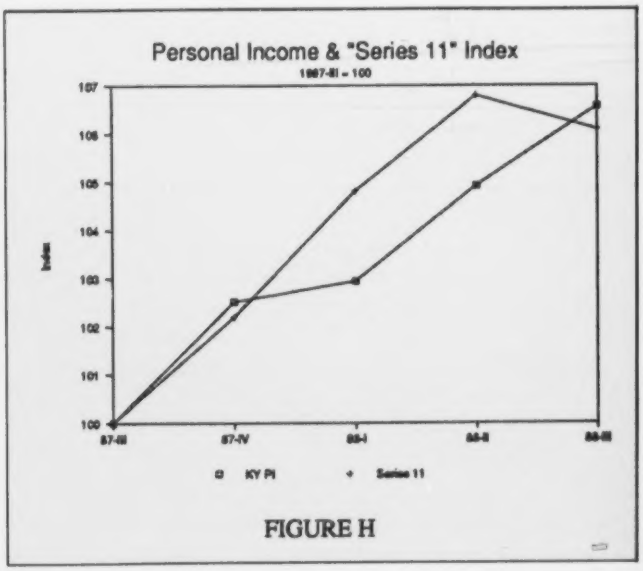

FIGURE H

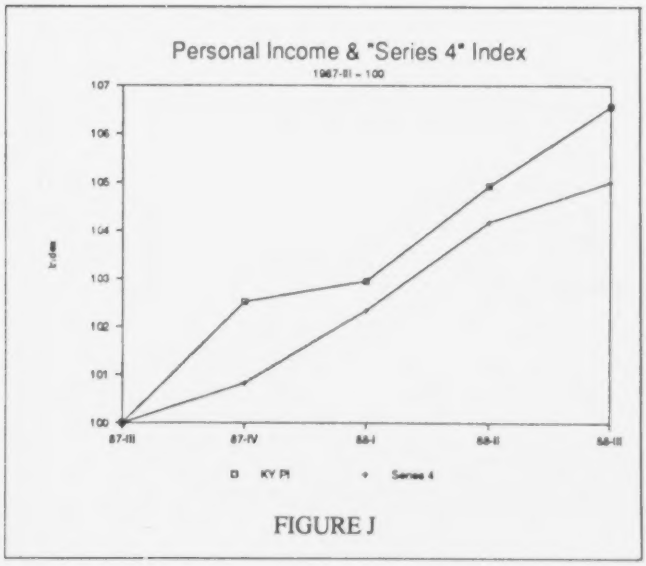

FIGURE J

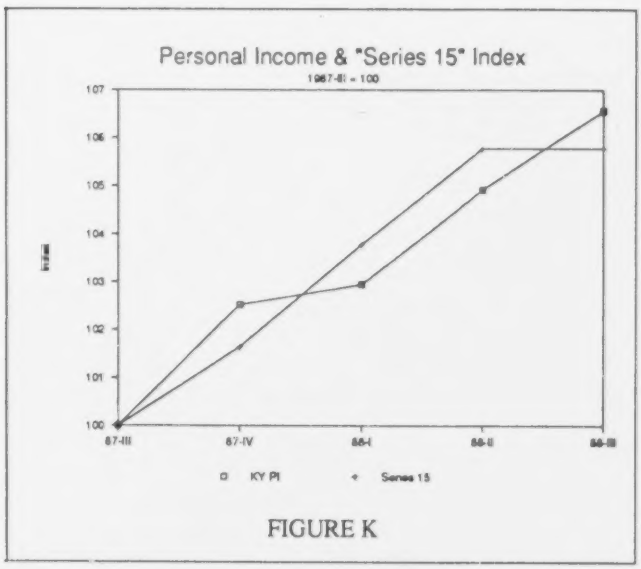

FIGURE K

A subset of the eleven indicators is shown with Personal Income in Figure J. This subset, denoted as "Series 4," includes manufacturing wages, jobs in manufacturing, manhours in non-durable manufacturing, and jobs in tobacco manufacturing. As the "Series 11" index was high in relation to the Personal Income index and the "Series 4" index was on the low side, an average of the two indexes was calculated to produce "Series 15," shown in Figure K. The effect of this calculation was, of course, to assign double weight to the four indicators included in "Series 4" as they are also included in "Series 11." As evident in Figure K, "Series 15" closely approximates the trend of Kentucky Personal Income beginning in the third quarter of 1987 and continuing through the third quarter of 1988.

Further study of Personal Income data would seem to hold some promise of enhancing our ability to monitor in a timely way the performance of the Kentucky economy.

RESEARCH RELEASE

The Status of Child Care in Kentucky: 1988

*Lucinda Zoe and Lynne Kelly**

In January of 1989, the Center for Business and Economic Research at the University of Kentucky released a study on the status of child day care in the Commonwealth. The study brings together information from a variety of sources, and investigates several areas of policy including the role of government subsidies, access to and affordability of child care for working parents and the role of regulation and its effect on the provision of child care.

There have been major changes in the structure of the American family, the labor force, and the nation's economy that have redefined the child care issue. Child day care entered the policy arena as a women's issue and was largely ignored. The shrinking labor pool caused by the drop in the nation's birth rate in the early 1970s has created concern that new strategies for attracting and keeping workers in the labor force must be developed. Because of the large number of working women with young children, child care has become a critical factor in renewing the productivity of the American labor force and revitalizing the American economy. It is estimated that by 1995, two-thirds of all school-aged children (nearly 15 million) will have mothers in the workforce. This represents an increase of more than 50% over the 1986 figure of 9.6 million. The demand for child care will continue to increase as the number of women entering the labor force climbs. However, at this time, child care alternatives remain limited for America's working families. The supply is limited, the cost is high, access is difficult and quality is an increasing concern. Although states have begun to take the lead in the light of shrinking federal support, their progress is slow and uneven.

The United States is the only developed Western Nation that does not have a national child care policy. Recent federal budget cuts have reduced the amount of federal funds available to states for child care. Title XX funding was decreased by 20% in order to create the Social Services Block Grants. The net effect was a reduction in the percentage of federal spending for child care from 40% in 1977 to 7% in 1986. There has been a definite shift in the distribution of federal child care benefits, with the majority of increased benefits coming from the child care tax credit and going to middle and upper income families.

The need for additional day care is especially acute in Kentucky. In 1980, the Governor's Office released the Kentucky Plan for Early Childhood Development. This report found that 135,427 Kentucky children under six years of age have mothers in the workforce. In addition, 1980 Census data reveal that an additional 159,815 children between the ages of six and 17 have mothers in the workforce. When compared to the number of available day care slots in 1980 and 1988, the end result is that nearly 90,000 Kentucky preschool children are being cared for in unidentified, unregulated "invisible" day care.

The regulation of day care establishes minimum standards of operation of day care providers. The intent of regulations is to protect the health and welfare of young children. Kentucky uses licensing as the exclusive means of regulating child day care. An unanticipated consequence of the current licensing procedure is that the regulations act as barriers to entry for new providers. The requirement for liability insurance, generally considered a sound business practice for small businesses, is costly and requires a significant investment of "up-front" money for new providers.

Another area of concern for working parents of young children is the high cost of child care. The most important variable determining the amount and quality of day care that a family can purchase is the family's income. The national average cost for center-based care is $50.00 per week per child. In Kentucky, the average is slightly lower; advocates offer a figure of $45.00 per week per child. Day care costs for infants are significantly higher; the national average for them is $100.00 per week. A single mother needs to earn nearly $9.00 per hour at a 40 hour per week job in order to purchase day care for two preschoolers and meet her family's basic MINIMUM expenses. A working family with two parents in the workforce and two young children loses one-third of its income after taxes for child care expenses.

The child day care issue represents a difficult problem for policy makers. Although stopping short of policy recommendations, the study does delineate several approaches to solving the day care dilemma. Changing from state-mandated licensing to voluntary registration has the potential to increase the availability of family home day care, while holding the costs at a minimum. Registration relies upon the parents of young children and the home care provider to monitor the quality of service that is delivered.

Another area that might be discussed is better coordination of the current licensing procedure, in an effort to reduce barriers to entry. For example, a request for zoning variances for family home day care providers could be requested at the

**Lucinda Zoe and Lynne Kelly are both staff members at the Center for Business and Economic Research at the University of Kentucky. Lucinda Zoe is the Assistant Director/Research Associate and Lynne Kelly is the Project Manager/Research Associate.*

Cabinet level. Along the same lines, a clearly written set of interpretive guidelines could be written that would allow parents, providers, and state field inspectors to more easily agree upon requirements.

The subsidy issue and the "optimal subsidy arrangement" presents the biggest challenge to the state's policy makers. Although Kentucky is one of four states that has managed to serve the same number of children between 1981 and 1987 under the Title XX program, there are still many low-to-moderate income families in need of child care subsidies.This issue can be addressed by looking at a number of the state's programs and policies.

First, the 60% income eligibility guidelines for the Title XX Program is inadequate for serving those Kentucky families in need.This is clearly a budgetary issue and a challenge to the state to raise the maximum percentage of state median income which families can earn and remain eligible for assistance.The Federal Child Care Food Program is a major subsidy that the Commonwealth has failed to access.As a result of our very limited number of family day care homes, we reap little benefit from this federal subsidy which provides monetary support in the amount of $11.00 per week per child, as well as nutritional training and technical assistance for the provider in family day care homes.

On the positive side, more than half of the states have child care budgets that are lower today than in 1981, after adjusting for inflation. Twenty-two states reduced the number of children they were able to support. Kentucky is one of four states that were able to serve as many children in 1987 as they did in 1981.

Finally, the state policy for the Job Training Partnership Act Program is organized in such a way that in areas of the state where the supply of licensed day care providers is limited, JTPA participants are excluded from the program.

Copies of the study are available from the Center for Business and Economic Research, the University of Kentucky, 301 Mathews Building, Lexington, Kentucky, 40506-0047, at a cost of $7.50 per issue.

1988 Kentucky Statistical Abstract

The Center for Business and Economic Research is pleased to announce the publication of the *1988 Kentucky Statistical Abstract*, edited by Carol M. Straus.

As a single source of statistical information, it is a basic reference document for state and local government officials, the business community, libraries, educators, and interested citizens. Its 107 tables cover topics such as population, income, earnings, employment, industry and business activity, mining, government, and social programs. Many tables present detailed information within general topics, such as earnings and employment by industry, population by age, and government expenditures by function and revenue by source. Specific industries which are covered include manufacturing, mining, construction, agriculture, retail trade, and services.

Data are presented for Kentucky and its 120 counties with many national comparisons and selected comparative data for all 50 states. Two appendices are included to help users of the Abstract interpret the meaning of the data that it contains. The first explains some techniques for using the data to examine trends and relationships. The second deals with some of the key concepts that underlie statistical information.

In response to a growing need for readily accessible information, the Center for Business and Economic Research undertook the preparation and publication of the *Abstract* as part of its mission to monitor and report on the Kentucky economy. This new effort complements existing programs that include the publication of the *Kentucky Annual Economic Report*, the maintenance of the Kentucky Economic Information System (KEIS), and the publication of *Review and Perspective*. It attempts to provide answers to most of the many questions it receives from officials and citizens of the Commonwealth.

The *1988 Kentucky Statistical Abstract* is available from the Center for Business and Economic Research at a cost of $12.00 per copy. Copies can be ordered by calling the Center at (606) 257-7675 or by using the form below. Readers who have not received a copy of the *1988 Kentucky Annual Economic Report* may request a copy with their Abstract order.

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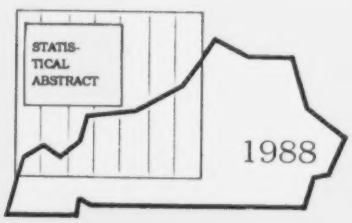

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Inforum

The following reports, books and reference sources should be of interest to those working in the social sciences in the areas of public policy, economics and economic development.

The Bureau of Economic Analysis (BEA) in the U.S. Department of Commerce released its annual edition of *Local Area Personal Income: 1981-1986* in 1988. The five volume set presents BEA's estimates of total and per capita personal income for local areas for 1981-1986, as well as additional details on the sources of personal income by type and major industry. Volume 1 is a Summary that includes methodology and classification of Metropolitan Areas by major source for all states and metropolitan areas. Volume 4 covers the Southeast Region, including Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North and South Carolina, Tennessee, Virginia and West Virgina by major source for counties and metropolitan areas (U.S. Department of Commerce, Bureau of Economic Analysis, Washington, DC: U.S. Government Printing Office, July 1988).

Cities of the United States is a new four-volume set from Gale Research Inc. that provides current information on economic, cultural, geographic, and social conditions in the most dynamic cities of the United States. Volume 1, *The South*, covers 30 cities, including Washington, D.C., and 16 states. Detailed profiles of each city provide information on geography and climate, history, population, government, economy, education, housing, health care, recreation, convention facilities, transportation and communications. Cost of living and housing price information are also included (Detroit: Gale Research, Inc., 1988).

A recent report from the Economic Policy Institute gathers together a variety of data designed to describe recent changes in the economic well-being of America's workers and their families. *The State of Working America* presents family incomes, wages, fringe benefits, employment and other indices from a number of government sources. Analyst Lawrence Mishel and economist Jacqueline Simon conclude that from 1979-1987, median family incomes declined, average weekly wages dropped and job creation slowed and was concentrated in the lowest-paying sectors (Washington, D.C.: Economic Policy Institute, 1988).

The Guide to State and Federal Resources for Economic Development published by the Northeast-Midwest Institute is a comprehensive guide that identifies state and federal programs supporting economic development activities. The guide analyzes the benefits and risks of a number of strategies and presents in-depth studies of several program examples. Following a survey of development agencies in all 50 states, 60 programs were selected for case studies. Each study examines the program's goal, its mode of operation, and how it works in practice. Particular attention is given to the number of jobs created and the level of private investment each has generated. All major federal departments and agencies that play a role in state and local economic development are examined, and a tax code chapter describes the status of four programs in light of the 1986 Tax Reform Act. This guide will serve as a reference tool for development professionals, urban and regional planners, state and local development agencies, and private-sector partners of public organizations (Washington, D.C.: Northeast-Midwest Institute, 1988).

The U.S Advisory Commission on Intergovernmental Relations (ACIR) sponsored a national policy conference on the homeless and has just published the papers in one volume entitled *Assisting the Homeless: State and Local Responses in an Era of Limited Resources*. The papers presented in this volume attempt to define the diverse dimensions of homelessness and its causes, examine the problem of estimating the size of the homeless population, discuss innovative private and public responses, identify governmental issues, and suggest additional local, state and federal actions that might be initiated to meet the problems of the homeless (Washington, D.C.: ACIR, 1988).

The Census Bureau's *County and City Data Book, 1988* is now available from the Government Printing Office. It provides statistics for cities & places with populations ranging from 2,500 to 25,000 as well as metropolitan areas, states, and census regions. This standard reference tool presents data on population, income, and employment; vital statistics; and figures from the 1987 economic and agriculture censuses, as well as from other government agencies and private sources. (Washington, DC: Government Printing Office, GPO Stock No. 803-005-30010-2).

As the spheres of work and family continue to affect each other, the demand for employer-supported child care will continue to increase. *The Employer's Guide To Child Care: Developing Programs for Working Parents* by Barbara Adolf addresses the issue of employer involvement and breaks the process down into manageable steps so that any employer can begin to deal successfully with the needs of his or her own workforce. Also included are worksheets that can be used to evaluate existing programs and aid in developing effective programs. Includes bibliography, appendices and an index (New York: Praeger Publishers, 1988 - A division of Greenwood Press, Westport, CT).

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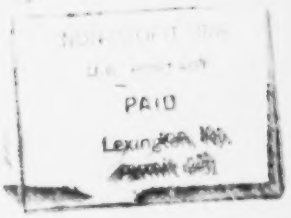

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Statistical Supplement

REVIEW & PERSPECTIVE

University of Kentucky

Summer 1989 Vol. 13, No. 2

Lottery Sales and Revenues, By State, FY84-FY88

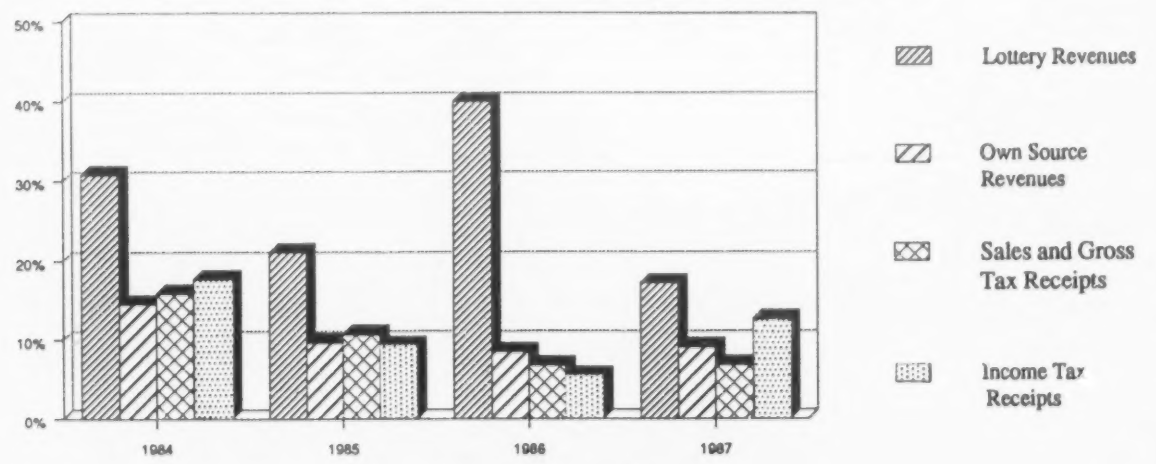
*Donna A. Cantrell**

Lottery revenues are among the fastest growing state revenue sources due to two factors. First, since 1981, the number of states operating lotteries has doubled. In 1981, fourteen states operated lotteries, and in 1985, 21 states had adopted lotteries as a means to generate additional revenues. By the end of fiscal year 1989 (FY89), at least 29 states were operating lotteries, including Kentucky.

Secondly, net lottery revenues, or lottery revenue returned to states, have had an average annual growth rate of 27 percent for the fiscal year period 1983 through fiscal year 1987 (FY83-FY87). This healthy growth rate is even more significant when compared to the growth rates of other state revenue sources. For example, total own source revenues for these states grew at an average annual rate of 10.5 percent and individual income tax receipts grew 11.3 percent. Year by year comparisons are illustrated in Figure 1.[1]

After the Lottery Referendum was approved by Kentucky voters on November 8, 1988, the Kentucky Finance and

FIGURE 1
GROWTH RATES OF STATE REVENUE SOURCES, FY84-FY87



Source: U.S. Department of Commerce, Bureau of Census, Governmental Finances, FY84-FY87

**Donna A. Cantrell is an Economist, Finance and Administration Cabinet, Office of Revenue Estimating and Economic Analysis, State of Kentucky.*

[1]*Only those states operating a lottery since 1983 were included in this comparison. The period of comparison is limited to FY84-FY87 because data on state revenues from other sources for FY88 are not yet available. Gross rate comparisons of lottery revenues are made to those of total own source revenue, sales and tax receipts and income tax receipts. Total own source revenues are generated only at the state level, i.e., do not include local and/or federal contributions.*

Administration Cabinet's Office of Revenue Estimating and Economic Analysis (OREEA), was given the task of developing a lottery revenue estimate. To begin such an analysis, a significant amount of lottery sales and revenue data was required. Historical game-specific sales data as well as total sales and net revenue data were not readily available for those states currently operating lotteries. Therefore, OREEA surveyed each states' Lottery Commission to obtain this data for a five-year period from fiscal year 1984 to fiscal year 1988 (FY84-FY88). These data are presented and analyzed briefly in the following discussion.

Gross lottery sales and sales by game type for each state from FY84-FY88 are presented in Table 1. Participation in and popularity of lotteries are determined largely by the types of games and the prize amounts. There are four general types of games: Instant, Numbers, Lotto, and Passive.[2] While state by state figures vary, the predominant source of lottery revenue for individual states results from Lotto and Numbers ticket sales. These are games which offer the greatest prizes. The innovativeness of management in coordinating game mix and developing new games is an important component to achieve maximum revenues and maintain public interest in games.

TABLE 1
STATE LOTTERY SALES BY GAME, FY 84-FY 88 (MILLION $)

	FY 84	FY 85	FY 86	FY 87	FY 88
ARIZONA					
Instant Sales	59.28	46.22	34.57	34.92	44.34
Numbers Sales	0.00	0.00	0.00	0.00	0.00
Lotto Sales	0.00	26.60	86.37	107.27	128.29
Passive Sales	0.00	0.00	0.00	0.00	0.00
Total Sales	59.28	72.82	120.94	142.19	172.63
Net Revenue	18.00	22.00	37.00	49.77	65.15
CALIFORNIA					
Instant Sales	*	*	1,763.00	1,010.00	899.00
Numbers Sales	*	*	0.00	0.00	0.00
Lotto Sales	*	*	0.00	378.50	1,096.00
Passive Sales	*	*	0.00	0.00	0.00
Total Sales	*	*	1,763.00	1,588.50	1,995.00
Net Revenue	*	*	692.00	527.63	748.10
COLORADO					
Instant Sales	117.50	105.20	108.90	113.20	91.00
Numbers Sales	0.00	0.00	0.00	0.00	0.00
Lotto Sales	0.00	0.00	0.00	0.00	0.00
Passive Sales	0.00	0.00	0.00	0.00	0.00
Total Sales	117.50	105.20	108.90	113.20	91.00
Net Revenue	41.40	32.00	29.20	35.00	31.00
CONNECTICUT					
Instant Sales	67.00	74.50	75.40	80.70	79.94
Numbers Sales	143.30	151.50	152.60	162.10	175.30
Lotto Sales	44.10	118.50	201.20	246.50	258.63
Passive Sales	0.00	0.00	0.00	0.00	0.00
Total Sales	254.40	344.50	429.20	489.30	513.87
Net Revenue	105.50	148.80	190.90	216.10	225.00
DELAWARE					
Instant Sales	2.05	1.88	2.42	5.25	9.99
Numbers Sales	27.60	31.41	31.57	33.06	36.10
Lotto Sales	3.40	6.35	6.93	7.48	9.73
Passive Sales	0.00	0.00	0.00	0.00	0.00
Total Sales	33.05	39.64	40.92	45.79	55.82
Net Revenue	14.00	15.00	16.70	17.10	20.50
DISTRICT OF COLUMBIA					
Instant Sales	16.45	8.67	5.39	2.77	5.20
Numbers Sales	66.72	95.97	104.73	108.20	105.02
Lotto Sales	2.42	7.34	8.53	9.75	7.36
Passive Sales	0.00	0.00	0.00	0.00	0.00
Total Sales	85.59	111.98	118.65	120.72	117.58
Net Revenue	25.28	35.47	40.00	40.10	40.00
FLORIDA					
Instant Sales	*	*	*	*	519.89
Numbers Sales	*	*	*	*	55.31
Lotto Sales	*	*	*	*	61.51
Passive Sales	*	*	*	*	0.00
Total Sales	*	*	*	*	636.71
Net Revenue	*	*	*	*	228.85
ILLINOIS					
Instant Sales	170.62	202.84	206.16	197.24	226.06
Numbers Sales	416.73	434.36	435.72	428.11	474.81
Lotto Sales	298.77	567.45	642.27	678.49	600.59
Passive Sales	0.00	0.00	0.00	0.00	0.00
Total Sales	886.12	1,204.65	1,284.15	1,303.84	1,301.46
Net Revenue	365.40	502.83	551.79	553.06	524.41
IOWA					
Instant Sales	*	*	77.57	72.94	70.41
Numbers Sales	*	*	0.00	0.00	0.00
Lotto Sales	*	*	4.12	21.57	53.58
Passive Sales	*	*	0.00	0.00	0.00
Total Sales	*	*	81.69	94.51	123.99
Net Revenue	*	*	27.00	33.00	40.00
KANSAS					
Instant Sales	*	*	*	*	NA
Numbers Sales	*	*	*	*	NA
Lotto Sales	*	*	*	*	NA
Passive Sales	*	*	*	*	NA
Total Sales	*	*	*	*	NA
Net Revenue	*	*	*	*	NA
MAINE					
Instant Sales	10.30	9.93	10.16	17.98	35.83
Numbers Sales	5.65	6.18	7.03	7.46	8.70
Lotto Sales	0.00	0.00	21.56	32.64	37.94
Passive Sales	0.00	0.00	0.00	0.00	0.00
Total Sales	15.95	16.11	38.75	58.08	82.47
Net Revenue	4.50	4.40	11.80	18.20	27.20
MARYLAND					
Instant Sales	0.00	0.00	23.52	46.98	96.22
Numbers Sales	483.01	550.77	554.03	548.49	548.44
Lotto Sales	0.00	129.61	140.71	165.07	166.60
Passive Sales	0.00	0.00	0.00	0.00	0.00
Total Sales	483.01	680.38	718.76	760.54	811.35
Net Revenue	199.19	250.12	323.42	332.37	352.68

[2] *In the Instant game, a player buys a ticket and rubs off a waxy substance to reveal, instantly, if he/she is a winner. In the Numbers game, the player selects a 3-digit to 4-digit number and places an online computer bet on that number being drawn. Drawings usually occur daily. In a Lotto game, a player usually selects six numbers, out of 36, 52, or more numbers and awaits the results of drawings, usually weekly. The Passive game consists of a prenumbered ticket and a periodic drawing.*

TABLE 1 (cont.)

	FY 84	FY 85	FY 86	FY 87	FY 88
MASSACHUSETTS					
Instant Sales	89.00	135.00	245.00	388.00	467.00
Numbers Sales	275.00	331.00	371.00	393.00	412.00
Lotto Sales	0.00	398.00	473.00	427.00	447.00
Passive Sales	0.00	0.00	0.00	0.00	0.00
Total Sales	364.00	864.00	1,089.00	1,208.00	1,326.00
Net Revenue	153.30	310.30	376.90	394.10	390.00
MICHIGAN					
Instant Sales	133.42	108.30	115.68	116.61	131.15
Numbers Sales	421.73	456.70	476.69	499.86	532.02
Lotto Sales	22.17	316.64	407.05	382.82	529.74
Passive Sales	7.87	3.90	0.00	0.00	0.00
Total Sales	585.19	885.54	999.42	999.29	1,202.82
Net Revenue	236.37	359.41	415.05	407.06	488.44
MISSOURI					
Instant Sales	*	*	207.00	141.00	96.00
Numbers Sales	*	*	0.00	33.00	11.00
Lotto Sales	*	*	0.00	0.00	40.00
Passive Sales	*	*	0.00	0.00	0.00
Total Sales	*	*	207.00	174.00	147.00
Net Revenue	*	*	36.60	78.30	66.60
MONTANA					
Instant Sales	*	*	*	*	23.39
Numbers Sales	*	*	*	*	0.00
Lotto Sales	*	*	*	*	0.00
Passive Sales	*	*	*	*	0.00
Total Sales	*	*	*	*	23.39
Net Revenue	*	*	*	*	8.38
NEW HAMPSHIRE					
Instant Sales	10.70	7.40	6.90	23.70	38.30
Numbers Sales	3.60	3.50	4.60	5.70	6.70
Lotto Sales	0.00	0.00	21.30	29.10	31.30
Passive Sales	3.00	2.60	0.00	0.00	0.00
Total Sales	17.30	13.50	32.80	58.50	76.30
Net Revenue	5.60	4.30	10.70	10.60	27.90
NEW JERSEY					
Instant Sales	75.00	71.00	68.20	70.40	NA
Numbers Sales	549.90	580.90	600.30	611.30	NA
Lotto Sales	222.90	272.70	321.60	435.20	NA
Passive Sales	0.00	0.00	0.00	0.00	NA
Total Sales	847.80	924.60	990.10	1,116.90	1,174.33
Net Revenue	358.32	390.87	419.35	472.22	502.23
NEW YORK					
Instant Sales	85.20	98.40	76.70	65.40	89.40
Numbers Sales	345.10	404.00	501.50	630.40	750.20
Lotto Sales	460.00	768.80	738.80	763.00	735.90
Passive Sales	0.00	0.00	0.00	0.00	0.00
Total Sales	890.30	1,271.20	1,317.00	1,458.80	1,575.50
Net Revenue	375.00	615.00	616.30	654.23	725.57
OHIO					
Instant Sales	53.00	80.00	94.00	148.00	286.00
Numbers Sales	388.00	418.00	421.00	462.00	497.00
Lotto Sales	162.00	356.00	423.00	460.00	568.00
Passive Sales	0.00	0.00	0.00	0.00	13.00
Total Sales	603.00	854.00	938.00	1,070.00	1,364.00
Net Revenue	250.00	328.60	370.00	376.00	507.00

	FY 84	FY 85	FY 86	FY 87	FY 88
OREGON					
Instant Sales	*	35.10	80.86	56.20	53.91
Numbers Sales	*	0.00	0.00	3.72	8.04
Lotto Sales	*	0.00	11.33	39.86	97.14
Passive Sales	*	0.00	0.00	0.00	0.00
Total Sales	*	35.10	92.19	99.78	159.09
Net Revenue	*	11.93	31.35	33.93	54.09
PENNSYLVANIA					
Instant Sales	198.10	200.58	208.37	210.20	224.85
Numbers Sales	549.15	582.53	613.44	631.28	680.08
Lotto Sales	487.98	511.63	498.37	498.04	526.23
Passive Sales	0.00	0.00	0.00	0.00	0.00
Total Sales	1,235.23	1,294.74	1,320.18	1,339.52	1,431.16
Net Revenue	515.86	572.65	552.24	570.16	592.92
RHODE ISLAND					
Instant Sales	NA	NA	NA	NA	NA
Numbers Sales	NA	NA	NA	NA	NA
Lotto Sales	NA	NA	NA	NA	NA
Passive Sales	NA	NA	NA	NA	NA
Total Sales	53.93	53.25	57.92	58.83	62.35
Net Revenue	18.43	18.66	21.63	21.59	22.09
SOUTH DAKOTA					
Instant Sales	*	*	*	*	26.00
Numbers Sales	*	*	*	*	0.00
Lotto Sales	*	*	*	*	0.00
Passive Sales	*	*	*	*	0.00
Total Sales	*	*	*	*	26.00
Net Revenue	*	*	*	*	7.80
VERMONT					
Instant Sales	4.50	4.40	3.90	12.80	20.70
Numbers Sales	0.60	0.70	1.30	1.40	1.50
Lotto Sales	0.00	0.00	7.30	11.00	12.90
Passive Sales	0.00	0.00	0.00	0.00	0.00
Total Sales	5.10	5.10	12.50	25.20	35.10
Net Revenue	1.30	1.20	3.30	8.00	11.00
WASHINGTON					
Instant Sales	155.00	75.40	63.50	46.39	51.50
Numbers Sales	9.60	12.07	11.83	12.25	12.80
Lotto Sales	0.00	62.00	105.84	135.29	150.60
Passive Sales	0.00	0.00	0.00	0.00	0.00
Total Sales	164.60	149.47	181.17	193.93	214.90
Net Revenue	71.88	62.35	69.26	78.80	83.35
WEST VIRGINIA					
Instant Sales	*	*	52.90	54.00	32.40
Numbers Sales	*	*	0.00	4.34	11.13
Lotto Sales	*	*	0.00	8.29	10.74
Passive Sales	*	*	0.00	0.00	0.58
Total Sales	*	*	52.90	66.63	54.85
Net Revenue	*	*	20.00	28.00	15.50
TOTAL					
Instant Sales	1,247.11	1,264.82	3,530.10	2,914.68	3,618.47
Number Sales	3,685.69	4,059.59	4,287.33	4,575.67	4,326.14
Lotto Sales	1,703.74	3,541.62	4,119.28	4,836.81	5,569.77
Passive Sales	10.87	6.50	0.00	0.00	13.58
Total Sales	6,701.35	8,925.78	11,994.64	12,386.05	14,774.66
Net Revenue	2,759.33	3,695.90	4,862.50	4,955.30	5,805.76

Source: Data were obtained from each state's Lottery Commission

*Indicates no lottery program in operation.

Note: Data for the first year of operation may not include a full twelve months in some states.

NA - Not Available

continued on page 6

selected indicators of ECONOMIC ACTIVIT

	Oct. 1988	Nov. 1988	Dec. 1988	Quarter IV 1988	% Change From Previous Quarter	% Change From Previous Year	Oct. 1988	Nov. 1988	De 19
	KENTUCKY						UNITED STATES		
EMPLOYMENT									
Civilian Labor Force (SA) (thousands)									
Total	1689.9	1731.3	1682.5	1701.2	-2.6	0.2	122091.0	122510.0	12
Employed	1569.9	1593.9	1569.7	1577.8	-1.9	1.4	115573.0	115947.0	116
Agriculture	69.0	75.0	67.4	70.5	-1.8	8.1	3238.0	3238.0	3
Nonagriculture	1500.9	1518.9	1518.9	1512.9	-1.5	1.5	112335.0	112709.0	112
Unemployed	114.0	119.5	113.2	115.6	-14.9	-17.8	6518.0	6563.0	6
Civilian Unemployment Rate (SA)	6.8	6.9	6.7	6.8	-12.7	-18.1	5.3	5.4	
Nonagricultural Wage and Salary Employment (SA) (thousands)									
Total	1373.4	1389.8	1380.2	1381.1	0.4	3.8	106973.0	107419.0	107
Goods-Producing	371.9	373.0	376.4	377.5	2.1	5.5	25743.0	25849.0	25
Manufacturing	275.7	277.9	278.0	277.2	0.1	5.1	19648.0	19714.0	19
Services-Producing	1001.5	1016.8	1003.8	1007.4	0.2	3.6	81230.0	81570.0	81
PRODUCTIVITY									
Average Weekly Earnings of Production Workers									
Manufacturing	410.7	419.4	418.0	416.0	1.1	-0.9	422.9	427.5	
Mining	485.3	402.4	344.6	410.8	-15.6	-19.3	543.1	532.5	
Average Weekly Hours of Production Workers									
Manufacturing	40.3	40.8	40.9	40.7	0.7	-1.9	41.3	41.5	
Mining	36.3	33.7	31.3	33.8	-2.1	12.2	42.7	41.9	
HOUSING									
Total Units (thousands)	1177.0	1180.0	775.0	3.9	0.6	73.8	123.7	110.7	
Valuation (millions $)	60.9	60.6	47.7	225.3	.0	56.8	8814.0	7520.0	7
Single-Family Units (thousands)	0.7	0.7	0.6	2.4	-0.5	40.5	82.8	73.3	
Valuation (millions$)	49.8	50.4	42.0	180.4	0.0	39.9	7005.0	8133.0	
Multi-Family Units (thousands)	1176.3	1179.3	774.4	1.5	2.3	175.1	40.9	37.4	
Valuation (millions $)	11.1	10.2	5.7	45.0	-9.1	205.0	1809.0	-613.0	7
MINING									
Total	14.2	14.7	14.3	43.2	6.6	-0.1	84.3	86.4	
Eastern Kentucky	10.3	10.8	10.6	31.7	7.9	-1.1	–	–	
Western Kentucky	3.9	3.9	3.7	11.5	3.2	2.2	–	–	
SALES									
New Passenger Car Registrations (thousands)	7.7	7.8	6.2	21.7	-24.6	-1.5	807.4	763.8	

SA = Seasonally adjusted

SAAR = Seasonally adjusted at annual rate

NA = Not available

* = Quarter to quarter comparisons are not meaningful due to seasonal variation.

% Change from Previous Quarter or Year = The percent difference between the current quarter and the same quarter in the quarter or year.

[1]Nonagricultural Wage and Salary Employment differs from the Employed Nonagricultural civilian Labor Force by the number of persons defined as self-employed.

[2]Average hourly earnings can be calculated by dividing average weekly hours into average weekly earnings.

[3]For Kentucky, the measures of mining productivity are only for bituminous coal and lignite. However, the U.S. data include other forms of mining.

[4]The housing figures describe private structures for which a construction permit has been authorized.

[5]These mining figures describe production of bituminous coal and lignite for both Kentucky and the U.S.

[6]New passenger car registration data are obtained from R.L. Polk & Company.

These tables of selected indicators of economic activity were prepared using data maintained through the Kentucky Economic Information System, Carol M.Straus, Manager. The data in the tables are reported figures which were obtained from a variety of state and federal agencies, as well as from private firms.

	Quarter. IV 1988	% Change From Previous Quarter.	% Change From Previous Year
3.0	122388.0	0.93	1.94
9.0	115573.0	0.81	3.05
3.0	3223.0	3.43	1.35
6.0	112620.0	0.98	2.69
4.0	6545.0	-1.07	-9.08
5.3	5.3	-2.00	-10.84
7.0	107343.0	0.81	3.53
9.0	25827.0	0.68	2.13
7.0	19699.7	0.69	2.83
8.0	81516.0	0.85	3.75
1.9	427.4	2.69	2.89
3.8	543.1	.53	1.12
1.6	41.5	.39	-0.08
2.7	42.4	0.55	-1.09
2.2	334.2	-22.04	4.57
1.0	23445.0	-10.72	15.29
4.2	220.3	-17.89	4.66
5.5	20685.0	-5.02	27.64
3.0	334.2	-22.04	4.57
5.5	2760.0	-38.41	-33.16
3.4	254.1	2.05	3.79
	--	--	--
5.3	2467.5	-9.29	3.77

	Oct. 1988	Nov. 1988	Dec. 1988	Qtr. IV 1988	% Change From Previous Qtr	% Change From Previous Year
	UNITED STATES					
PRICES						
Consumer Price Indexes (1982-84=100)						
All Items	120.2	120.3	120.5	120.3	1.04	4.27
Food and Beverages	120.3	120.2	120.6	120.4	0.78	5.15
Medical Care	141.2	141.8	142.3	141.8	1.36	6.81
Energy	89.9	88.9	88.7	89.2	0.19	0.15
Producer Price Indexes (1982=100)						
All Commodities	108.2	108.3	109.0	108.5	-0.12	4.16
All Finished Goods	109.3	109.7	110.0	109.7	1.14	3.36
Intermediate Materials	108.6	109.0	109.5	109.0	5.48	5.48
Crude Materials	95.0	94.0	97.0	95.3	-1.69	0.56
All Construction Materials	116.9	117.6	117.8	117.4	1.15	4.76

	Qtr II 1988	Qtr III 1988	Qtr IV 1988	% Change From Previous Qtr	% Change From Previous Year
	UNITED STATES				
PERSONAL INCOME (SAAR) (billion $)	4022.4	4093.9	4180.5	2.11	7.01
FOREIGN TRADE (billion $)					
Exports	78.0	81.0	81.9	1.11	20.80
Agriculture	8.7	8.7	10.3	18.39	21.18
Imports	110.1	109.8	115.8	5.50	6.24
Balance	-32.0	-28.8	-33.9	17.71	-17.72
MISCELLANEOUS					
Gross National Product (SA) (billion $)	4823.8	4909.0	4999.7	1.85	7.24
Gross National Product (SA) (billion 1982$)	3985.2	4009.0	4033.4	0.61	2.81
Composite Index of 11 Leading Indicators (1982=100)	142.0	143.5	144.2	0.46	3.00
Index of Industrial Production (SA) (1977=100)	136.0	138.4	139.9	1.11	5.03
Average Prime Rate Charged by Banks on Short-Term Business Notes	8.7	9.7	10.2	4.98	14.84
Interest Rate on 3-month Treasury Bills	6.2	7.0	7.7	10.15	27.68

	Qtr II 1988	Qtr III 1988	Qtr IV 1988	% Change From Previous Qtr	% Change From Previous Year
	KENTUCKY				
PERSONAL INCOME (SAAR) (million $)	47237.0	48028.0	48688.0	1.37	5.22
STATE GOVERNMENT RECEIPTS (million $)					
General Fund	827.7	721.3	853.4	*	6.04
State Road Fund	160.4	167.2	159.4	*	15.65

States also vary in their regulations and restriction of lotteries. For example, Colorado has been restricted by legislation to operate only instant games. While the number of people living in Colorado is comparable to Arizona, total lottery sales in FY88 for Arizona were $172.63 million, while Colorado totaled only $91.00 million. Similarly, the Missouri lottery has been restricted in promotion and advertising of lottery games. While Missouri has almost 600,000 more residents than Washington, the Washington lottery had total sales of $214.90 million, while Missouri totaled only $147.00 million. This advertising restriction was lifted in FY89.

In absolute dollar terms, net revenue from lotteries is significant.[3] In FY83, states received $2,038.8 million in net lottery revenues. In FY88, states received $ 5,805.8 million.[4] During this time period, eight states adopted lotteries. Further examination of net revenue growth rates of each state operating a lottery over the five-year period indicates significant variability in growth from year to year. As shown in Table 2, growth rates have varied from a low of -23.2 percent in New Hampshire in FY85 to a high of 175.0 percent in Vermont in FY86. Similarly, within a given year, growth rates have varied. For example, in FY 88, growth rates ranged from a -11.4 percent to 163.2 percent.

The lottery revenue variability between states is further demonstrated by analyzing the per capita wagers (or per capita sales from lottery programs). As shown in Table 3, Massachusetts had the highest per capita wager, $226.67, in FY88 compared to Colorado's low of $27.16. There has also been a significant increase in the per capita wager during this period. Since FY83, the average per capita wager in all states has increased from $46.27 to $96.20, approximately 108 percent.

TABLE 2
GROWTH RATES OF NET LOTTERY REVENUES, FY84-FY88

	FY 84	FY 85	FY 86	FY 87	FY 88
Arizona	-22.08%	22.22%	68.18%	34.51%	30.90%
California	*	*	*	22.31	41.79
Colorado	11.91	-22.71	-8.75	19.86	-11.43
Connecticut	42.95	41.04	28.29	13.20	4.12
Delaware	40.00	7.14	11.33	2.40	19.88
District of Columbia	100.63	40.31	12.77	0.25	-0.25
Florida	*	*	*	*	*
Illinois	70.03	37.61	9.74	0.23	-5.18
Iowa	*	*	*	22.22	21.21
Kansas	*	*	*	*	NA
Maine	18.42	-2.22	168.18	34.28	49.45
Maryland	0.50	25.57	29.31	2.77	6.11
Massachusetts	81.85	102.41	21.46	4.56	-1.04
Michigan	10.09	52.05	15.48	-1.93	20.00
Missouri	*	*	*	113.93	-14.94
Montana	*	*	*	*	*
New Hampshire	-1.75	-23.21	148.84	-0.93	163.21
New Jersey	21.30	9.08	7.29	12.61	6.36
New York	39.51	64.00	0.21	6.15	10.90
Ohio	70.65	35.44	9.27	1.62	34.84
Oregon	*	*	162.78	8.23	59.42
Pennsylvania	45.39	11.01	-3.56	3.24	3.99
Rhode Island	27.99	1.25	15.92	-0.18	2.32
South Dakota	*	*	*	*	*
Vermont	18.18	-7.69	175.00	142.42	37.50
Washington	3.13	-13.26	11.08	13.77	5.77
West Virginia	*	*	*	40.00	-44.64

Source: Data were obtained from each state's Lottery Commission.

* Indicates lottery not operating in previous year.

NA - Not available

TABLE 3
PER CAPITA WAGER, FY84-FY88
(DOLLARS)

	FY 84	FY 85	FY 86	FY 87	FY 88
Arizona	19.29	22.81	36.44	41.45	48.77
California	*	*	65.34	50.44	71.07
Colorado	36.83	32.53	33.33	34.20	27.16
Connecticut	80.69	108.64	134.59	152.43	158.60
Delaware	53.83	63.73	64.64	71.55	87.22
District of Columbia	137.16	179.74	189.54	191.62	189.65
Florida	*	*	*	*	51.98
Illinois	76.89	104.42	111.16	112.69	112.39
Iowa	*	*	28.65	33.40	44.28
Kansas	*	*	*	*	NA
Maine	13.77	13.83	33.03	49.22	69.30
Maryland	111.09	154.88	160.94	167.89	176.38
Massachusetts	62.85	148.48	186.73	206.85	226.67
Michigan	64.58	97.44	109.29	104.74	130.32
Missouri	*	*	40.86	34.12	28.65
Montana	*	*	*	*	28.84
New Hampshire	17.69	13.51	31.94	55.19	70.00
New Jersey	112.87	122.29	129.95	145.24	151.33
New York	50.26	71.63	74.11	82.14	88.71
Ohio	56.12	79.46	87.24	99.35	126.53
Oregon	*	13.07	34.17	36.68	58.27
Pennsylvania	103.89	109.14	111.05	112.85	120.67
Rhode Island	56.18	55.07	59.41	60.03	62.98
South Dakota	*	*	*	*	36.62
Vermont	9.62	9.53	23.11	45.82	63.82
Washington	37.84	33.91	40.60	43.00	47.13
West Virginia	*	*	27.58	35.07	29.02
U.S. Total	1,101.45	1,434.11	1,813.69	1,969.96	2,306.36
Average	61.19	75.48	78.86	85.65	96.20

Source: Data were obtained from each state's Lottery Commission.

Note: In addition to those states operating lotteries by FY88, three other states—Kentucky, Wisconsin and Indiana—have adopted lotteries.

*Indicates no lottery program in operation.

NA - Not Available

[3]Generally, gross lottery revenues are distributed among three categories: prizes, administrative costs, and net revenues. On average, 49 percent of sales revenues are allocated to prizes, 14 percent to administrative costs, and 37 percent is returned to the state.

[4]This total does not include revenues for the state of Kansas as those data were not yet available. Subsequent reference to FY88 lottery data will also exclude Kansas.

Total lottery revenue and the variation in lottery revenue may be attributed to: 1) the structure and management of the lottery program; and, 2) socioeconomic characteristics of the state. Structural and management characteristics of the state include:[5]

- the game mix, including the games in play and new games introduced;
- prize structure, including both prize amounts and percent of total sales returned to prize accounts;
- marketing, advertising, and promotion; and,
- the ability to adjust rapidly to changing public demand.

Socioeconomic characteristics of the state which will influence sales are:

- the state's population;
- per capita income; and,
- the number and availability of retail establishments.

These factors are important considerations when evaluating lotteries as a source of state revenue.

The data collected by OREEA and presented in this discussion were necessary to estimate the revenue potential a state lottery would provide Kentucky. Other states will be evaluating the option of adopting a lottery as an alternative source of revenue and may find this data useful for their analysis. The data set will be maintained by OREEA and is available on request.

Kentucky's First Quarter Experience

The Kentucky Lottery Corporation (KLC) began the operation of instant games on April 4, 1989. On July 10, KLC made its first transfer to the State. During the first quarter of operation (the fourth quarter of FY 89), the lottery had recorded $122.6 million in gross sales. After the payment of startup costs, $41.25 million was transferred to the State. This is 33.1 percent of gross sales for this period.

This amount represents an average of $9.4 million spent per week on the lottery or an average annualized per capita wager of $132.00 per Kentucky resident. In FY88, the average per capita wager nationally was $96.20, much lower than indicated by the first quarter activity of the Kentucky lottery.

However, lotteries tend to go through cycles of popularity depending on the games played and prize amounts. Public enthusiasm for the lottery was overwhelming during the first month of lottery operation but began to decline by the end of the quarter. The KLC is scheduled to begin operation of on-line computer games in October 1989. It is probable that there will be another surge in public enthusiasm and very healthy gross sales.

Inforum

The Kentucky Supreme Court's recent ruling on the state's school system presents an enormous challenge to the state's policy makers. The court declared the entire system unconstitutional and has given the legislature until April of 1990 to establish a new system that is equitable and efficient. During the 1980s, more responsibility has been placed on state governments and local school districts for implementing new programs and improving the quality of education. Now more than ever before a well educated and skilled workforce is critical to the nation's well being. As education and workforce issues have gained prominence on the national and state agenda, the demand for critical studies, reports, and books analyzing these issues has risen. The following sources represent a sampling of recent books and reports addressing education, partnerships with industry, and retraining the workforce.

In *A Second Chance: Training for Jobs* economist Sar Z. Levin and policy analyst Frank Gallo assess the activities funded under the Job Training Partnership Act (JTPA) and take a close look at employment and training programs. This book is the first comprehensive assessment of all of JTPA's components and it discusses the reforms necessary to make JTPA a more effective program. It includes appendices on programs, and an extensive bibliography. (Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 1988) ISBN: 0-88099-056-2

Ways in which education and business can work together to build a strong economy are examined in *Education Incorporated* edited by the Northeast- Midwest Institute. Describing formal and informal programs already underway, the book suggests specific actions to use existing resources and talents cooperatively. It also shows what government can do to promote collaborations between business and education sectors. Six studies were collected to explore the wide range of collaborative efforts needed to meet the challenges posed by the changes in America's economic structure. The volume is indexed and includes a selected bibliography. (New York: Quorum Books, 1988) ISBN: 0-89930-282-3

Higher Education in Partnership with Industry, a recent book in the Jossey-Bass Higher Education Series, shows how educational institutions can take advantage of new opportunites for creative collaborations with business in such areas as training in new technologies, applied research, and product development. The authors describe how to initiate and implement partnerships that address industry needs without compromising education's traditions and values. They offer guidelines for handling every stage of developing cooperative programs, and explore the range of possible problems that can arise when higher education and industry join forces. Numerous tables, figures, and sample documents that provide step- by-step assistance are included. Indexed. (San Francisco: Jossey-Bass Publishers, 1988) ISBN: 1-55542-071-0

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[5] *A more detailed discussion of these influences can be found in Kentucky Lottery Revenue Estimate, Research and Information Report Series, Report No. 1, Finance and Administration Cabinet, Office of Revenue Estimating and Economic Analysis, Commonwealth of Kentucky, 1988.*

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